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Erratum: Extracting (n,(gamma)) direct capture cross sections from Coulomb dissociation: application to 14C(n,(gamma))15C

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Erratum: *Extracting (n,γ) direct capture cross sections from Coulomb dissociation: application to $^{14}C(n,\gamma)^{15}C$*

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In Ref. [1] we proposed a systematic methodology to extract neutron capture cross sections from Coulomb Dissociation data. Using the Continuum Discretized Coupled Channel formalism to describe the ^{15}C breakup process, the asymptotic normalization coefficient (ANC) for the ground state is extracted through a χ^2 fit. The corresponding error bar is defined using $\chi^2_{\rm min}+1$. We discovered a mistake in the calculation of the errors associated with the extracted ANC and here we present the corrected values.

The experimental data from which the ANC is extracted covers a range of energies up to 4 MeV, and the value obtained for the full energy range is $C_0 = 1.31 \pm 0.07$ fm$^{-1/2}$. We find that the ANC is better determined if the high energy data is discarded and the maximum energy is cut at 1.2 MeV. This is justified since the direct measurements we are comparing to, and the peak of the cross section (Fig. 1 in Ref. [1]), all lie below this cut. The higher energy data is more uncertain and lies in a region where the theoretical cross section is insensitive to the ANC, thus adding unwarranted uncertainty to the extracted ANC. With this energy cut one can better determine the ANC as $C_0 = 1.32 \pm 0.04$ fm$^{-1/2}$.

All conclusions in our previous paper [1] hold. More details on the fitting procedure can be found in Ref. [2]. Figure 2 of Ref. [1] should be replaced by the figure below, where the shaded area is the range of uncertainty for an ANC of $C_0 = 1.32 \pm 0.04$ fm$^{-1/2}$, extracted from data up to $E = 1.2$ MeV.

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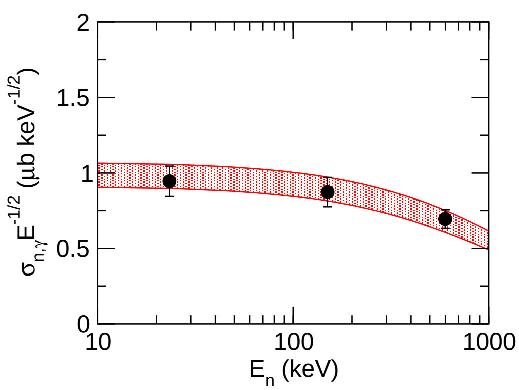

FIG. 1: (Color online) Capture cross sections, multiplied by the energy factor $E^{-1/2}$, versus neutron energy. The shaded area corresponds to results obtained from the RIKEN data [3] and the black circles are the latest direct measurements [4].